1. Solve the equation for x and choose the interval that contains x (if it exists).

$$9 = \ln \sqrt[3]{\frac{23}{e^{8x}}}$$

A. $x \in [1.8, 4.3]$

B. $x \in [-2.5, -1.7]$

C. $x \in [-1.7, -0.3]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+8} - 2$$

A. $[a, \infty), a \in [1, 4]$

B. $(-\infty, a), a \in [-6, 0]$

C. $(a, \infty), a \in [1, 4]$

D. $(-\infty, a], a \in [-6, 0]$

E. $(-\infty, \infty)$

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2 (x + 2) - 6$$

A. $(-\infty, a), a \in [-1.7, 4.3]$

B. $(-\infty, a], a \in [3.9, 7.6]$

C. $[a, \infty), a \in [-6.3, -5.2]$

D. $(a, \infty), a \in [-2.3, -1]$

E. $(-\infty, \infty)$

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4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+2} - 3$$

A. $(-\infty, a], a \in [-7, -2]$

B. $(a, \infty), a \in [3, 6]$

C. $[a, \infty), a \in [3, 6]$

D. $(-\infty, a), a \in [-7, -2]$

E. $(-\infty, \infty)$

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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{3x+3} = \left(\frac{1}{343}\right)^{2x-3}$$

A. $x \in [7.68, 14.68]$

B. $x \in [-2.36, 0.64]$

C. $x \in [-8, -3]$

D. $x \in [-0.23, 1.77]$

E. There is no Real solution to the equation.

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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-3x + 6) + 4 = 2$$

A. $x \in [-1.36, -0.16]$

B. $x \in [-0.37, 1.1]$

C. $x \in [4.58, 6]$

D. $x \in [1.48, 2.81]$

E. There is no Real solution to the equation.

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x-4} = \left(\frac{1}{9}\right)^{-4x-3}$$

A. $x \in [-0.89, 1.11]$

B. $x \in [0.45, 2.45]$

C. $x \in [-3.35, -0.35]$

D. $x \in [-19.57, -14.57]$

E. There is no Real solution to the equation.

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8. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 8) - 2$$

A. $(-\infty, a), a \in [-11.2, -6.8]$

B. $(a, \infty), a \in [6.5, 8.3]$

C. $[a, \infty), a \in [-4.5, -1.7]$

D. $(-\infty, a], a \in [0.3, 4]$

E. $(-\infty, \infty)$

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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(2x + 7) + 6 = 3$$

A. $x \in [9, 12]$

B. $x \in [-11, -9]$

C. $x \in [-4.48, -2.48]$

D. $x \in [-18, -15]$

E. There is no Real solution to the equation.

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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$23 = \ln \sqrt[5]{\frac{6}{e^{8x}}}$$

A. $x \in [-4.18, -1.18]$

B. $x \in [-6.53, -2.53]$

C. $x \in [12.15, 17.15]$

D. There is no Real solution to the equation.

E. None of the above.